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Filed : January 21, 2000

AMENDMENTS TO THE CLAIMS

1-28. (Cancelled)

29. (Currently amended) ~~The biological fluid measuring device of claim 1~~ A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an angiogenic layer, said angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein said sensor protrudes from said housing.

2 30. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein the sensor further comprises a sensor interface dome.

3 31. (Currently amended) The biological fluid measuring device of claim ~~1~~ 29, wherein said membrane impregnated with oxidase comprises a resistance layer, an enzyme layer, an interference layer and an electrolyte layer.

4 32. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

5 33. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

6 34. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

7 35. (Currently amended) The biological fluid measuring device of claim ~~4~~ 31, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

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8 ~~36~~ (Currently amended) The biological fluid measuring device of claim ~~8~~ ⁷ ~~35~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

9 ~~37~~ (Currently amended) The biological fluid measuring device of claim ~~1~~ ¹ ~~29~~, wherein said bioprotective membrane comprises ~~at least one of~~ polypropylene, ~~or~~ polysulphone, ~~polytetrafluoroethylene, and poly(ethylene terephthalate).~~

10 ~~38~~ (Currently amended) The biological fluid measuring device of claim ~~1~~ ¹ ~~29~~, wherein said bioprotective membrane further comprises pores having a diameter of about 0.4 μm .

11 ~~39~~ (Currently amended) The biological fluid measuring device of claim ~~1~~ ¹ ~~29~~, wherein said angiogenic layer is selected from the group consisting of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

12 ~~40~~ (Currently amended) The biological fluid measuring device of claim ~~1~~ ¹ ~~29~~, further comprising c) a securing element for securing said device to biological tissue, said securing element composed of a material selected from the group consisting of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

13 ~~41~~ (Currently amended) The biological fluid measuring device of claim ~~13~~ ¹² ~~40~~, wherein said securing element comprises a polyester velour.

14 ~~42~~ (Currently amended) The biological fluid measuring device of claim ~~1~~ ¹ ~~29~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

32 ~~43~~ (Cancelled)

~~44~~ (Currently Amended) An implantable glucose monitoring device of claim ~~43~~ ³¹ ~~47~~, wherein said bioprotective membrane comprises pores, said pores having diameters ranging from about 0.1 micron to about 1.0 micron.

33 ~~45~~ (Currently Amended) An implantable glucose monitoring device of claim ~~43~~ ³¹ ~~47~~, wherein said bioprotective membrane comprises polytetrafluoroethylene.

~~46~~ (Cancelled)

31 ~~47~~ (Currently amended) ~~An implantable glucose monitoring device of claim 46~~ A wholly implantable glucose monitoring device, comprising:

a) a housing of size and configuration for whole implantation into a host; and

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b) a sensor supported by said housing for communication with tissue of said host, said sensor comprising (i) a member for determining the amount of glucose in biological fluid of said host, and (ii) a bioprotective member disposed more distal to said housing than said glucose determining member and comprising a bioprotective membrane that is substantially impermeable to macrophages and permeable to glucose and oxygen; and

c) a member for securing the device to biological tissue of said host, said securing member cooperatively associated with said housing, and wherein said securing member comprises poly(ethylene terephthalate).

34 48. (Currently amended) An implantable glucose monitoring device of Claim 43 47, wherein said glucose determining member comprises a membrane containing glucose oxidase, said glucose oxidase-containing membrane positioned more proximal to said housing than said bioprotective member.

43 49. (Currently amended) An implantable glucose monitoring device of Claim 43 47, wherein said device further comprises at least two electrodes supported by said housing and operably connected to said sensor.

43 50. (Previously presented) An implantable glucose monitoring device of Claim 43 49, wherein said device further comprises electronic circuitry operably connected to at least one of said electrodes and adapted for long-term operation.

48 51. (Currently amended) An implantable glucose monitoring device of claim 43 47, said housing including comprising a cavity contained therewithin.

48 52. (Previously presented) An implantable glucose monitoring device of claim 43 51, wherein said sensor is within said housing cavity.

53. (Cancelled).

64 54. (Currently amended) The biological fluid measuring device of claim 53 57, wherein said bioprotective membrane is substantially impermeable to macrophages.

65 55. (Currently amended) The biological fluid measuring device of claim 53 57, wherein said bioprotective membrane comprises pores, said pores having diameters ranging from about 0.1 micron to about 1.0 micron.

66 56. (Currently amended) The biological fluid measuring device of claim 53 57, wherein said bioprotective membrane comprises polytetrafluoroethylene.

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57. (Currently amended) ~~The biological fluid measuring device of claim 53~~ A biological fluid measuring device, comprising:

(a) a housing comprising an electronic circuit and at least two electrodes operably connected to said electronic circuit; and

(b) a sensor operably connected to said electrodes of said housing, said sensor comprising (i) a bioprotective membrane, and (ii) an angiogenic layer, said angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein said angiogenic layer comprises polytetrafluoroethylene.

67 74
58. (Currently amended) The biological fluid measuring device of claim 53-57, further comprising (c) a member for securing said device to biological tissue, and securing member associated with said housing.

68 80
59. (Previously presented) The biological fluid measuring device of claim 58, wherein said securing member comprises poly(ethylene terephthalate).

269 65
60. (Currently amended) The biological fluid measuring device of claim 53-57, wherein said sensor further comprises a member for determining the amount of glucose in a biological sample.

70 66
61. (Previously presented) The biological fluid measuring device of claim 60, wherein said glucose determining member comprises a membrane containing glucose oxidase, said glucose oxidase-containing membrane positioned more proximal to said housing than said bioprotective membrane.

81 67
62. (Currently amended) The biological fluid measuring device of claim 53-57, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

63. (Cancelled)

94 64. (Currently amended) The device of claim 63-66, wherein said wholly implantable device is sized and configured for being wholly implanted subcutaneously.

65. (Cancelled)

94 66. (Currently amended) ~~The device of claim 65;~~ A device for measuring glucose in a tissue of a host comprising:

a wholly implantable device comprising a sensor having an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted

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for substantial fixation of said tip in a foreign body capsule, wherein said sensor tip fixation domain comprises a capsular attachment layer on said sensor, and wherein said sensor tip fixation domain further comprises an angiogenic layer on said sensor.

67. (Cancelled)

94
90.68. (Currently amended) The device of claim 67.66, wherein said ~~non-smooth layer~~ includes capsular attachment layer comprises surgical grade polyester velour.

69. (Cancelled)

129.70. (Currently amended) ~~The device of claim 69~~ An implantable device for subcutaneous monitoring of glucose levels, comprising a housing and a sensor comprising an angiogenic layer for promoting adequate microcirculatory delivery of glucose and oxygen to said sensor, wherein said sensor further includes comprises a capsular attachment layer.

130.71. (Currently amended) The device of claim 69 70, wherein said implantable device is sized and configured for being wholly implanted subcutaneously.

15.72. (New) The device of claim 29, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

16.73. (New) The device of claim 72, wherein said wherein said sensor tip fixation domain further comprises a capsular attachment layer.

17.74. (New) The device of claim 73, wherein said capsular attachment layer comprises a porous implantable material.

18.75. (New) The device of claim 73, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

19.76. (New) The device of claim 73, wherein said capsular attachment layer comprises surgical grade polyester velour.

20.77. (New) The device of claim 29, wherein said bioprotective membrane comprises polytetrafluoroethylene.

21.78. (New) The device of claim 29, wherein said angiogenic membrane comprises polytetrafluoroethylene.

22.79. (New) The device of claim 29, wherein said bioprotective membrane and said angiogenic layer are formed from a polytetrafluoroethylene.

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23 80. (New) The device of claim 29, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

24 81. (New) The device of claim 29, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

25 82. (New) The device of claim 29, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for continuous, long-term operation.

26 83. (New) The device of claim 29, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

27 84. (New) The device of claim 83, wherein said data transmitting apparatus comprises radiotelemetry.

28 85. (New) The device of claim 29, wherein said device is wholly implantable.

29 86. (New) The device of claim 85, wherein said device is sized and configured for being wholly implantable subcutaneously.

30 87. (New) The device of claim 29, wherein said housing is substantially oval-shaped.

161 88. (New) A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein the sensor further comprises a sensor interface dome.

162 89. (New) The device of claim 88, further comprising c) a securing element for securing said device to biological tissue.

163 90. (New) The device of claim 89, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

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- 164
91. (New) The device of claim 88, wherein said securing element comprises a polyester velour.
- 165
92. (New) The device of claim 88, wherein said sensor interface dome comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.
- 166
93. (New) The device of claim 92, wherein said fixation domain further comprises a capsular attachment layer.
- 167
94. (New) The device of claim 93, wherein said capsular attachment layer comprises a porous implantable material.
- 168
95. (New) The device of claim 93, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.
- 169
96. (New) The device of claim 95, wherein said capsular attachment layer comprises surgical grade polyester velour.
- 170
97. (New) The device of claim 88, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, and mixed cellulose esters.
- 171
98. (New) The device of claim 88, wherein said angiogenic layer comprises one of polyvinyl chloride, polypropylene, polysulphone, and polymethacrylate.
- 172
99. (New) The device of claim 88, wherein said bioprotective membrane comprises polytetrafluoroethylene.
- 173
100. (New) The device of claim 88, wherein said angiogenic layer comprises polytetrafluoroethylene.
- 174
101. (New) The device of claim 88, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.
- 175
102. (New) The device of claim 88, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.
- 176
103. (New) The device of claim 88, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.
- 177
104. (New) The device of claim 88, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

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185. (New) The device of claim 88, wherein said oxidase impregnated membrane comprises a single homogeneous structure.
- 179
186. (New) The device of claim 88, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.
- 180
187. (New) The device of claim 106, wherein said resistance layer restricts the transport of glucose therethrough.
- 181
188. (New) The device of claim 106, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.
- 182
189. (New) The device of claim 106, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.
- 183
190. (New) The device of claim 106, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.
- 184
191. (New) The device of claim 106, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.
- 185
192. (New) The device of claim 111, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.
- 186
193. (New) The device of claim 106, wherein said enzyme layer contains glucose oxidase.
- 187
194. (New) The device of claim 88, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.
- 188
195. (New) The device of claim 88, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.
- 189
196. (New) The device of claim 88, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.
- 190
197. (New) The device of claim 116, wherein said data transmitting apparatus comprises radiotelemetry.
- 191
198. (New) The device of claim 88, wherein said device is wholly implantable.

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192
119. (New) The device of claim 118, wherein said device is sized and configured for being wholly implantable subcutaneously.

193
120. (New) The device of claim 88, wherein said housing is substantially oval-shaped.

194
121. (New) The device of claim 88, wherein said sensor interface dome protrudes from said housing.

195
122. (New) A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an angiogenic layer positioned more distal to said housing than said bioprotective membrane, wherein said membrane impregnated with oxidase comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

196
123. (New) The device of claim 122, further comprising c) a securing element for securing said device to biological tissue.

197
124. (New) The device of claim 123, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

198
125. (New) The device of claim 123, wherein said securing element comprises a polyester velour.

199
126. (New) The device of claim 125, wherein said sensor interface dome comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

200
127. (New) The device of claim 126, wherein said wherein said fixation domain further comprises a capsular attachment layer.

201
128. (New) The device of claim 127, wherein said capsular attachment layer comprises a porous implantable material.

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- ²⁰²~~129~~. (New) The device of claim ²⁰⁰~~127~~, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.
- ²⁰³~~130~~. (New) The device of claim ²⁰⁰~~127~~, wherein said capsular attachment layer comprises surgical grade polyester velour.
- ²⁰⁴~~131~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.
- ²⁰⁵~~132~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said bioprotective membrane comprises polytetrafluoroethylene.
- ²⁰⁶~~133~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said angiogenic layer comprises polytetrafluoroethylene.
- ²⁰⁷~~134~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.
- ²⁰⁸~~135~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.
- ²⁰⁹~~136~~. (New) The device of claim ²⁰⁸~~135~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.
- ²¹⁰~~137~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).
- ²¹¹~~138~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said resistance layer restricts the transport of glucose therethrough.
- ²¹²~~139~~. (New) The device of claim ²¹¹~~138~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.
- ²¹³~~140~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.
- ²¹⁴~~141~~. (New) The device of claim ²¹³~~140~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.
- ²¹⁵~~142~~. (New) The device of claim ¹⁹⁵~~122~~, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

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²¹⁶~~143~~. (New) The device of claim ²¹⁵~~142~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

²¹⁷~~144~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said enzyme layer contains glucose oxidase.

²¹⁸~~145~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

²¹⁹~~146~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

²²⁰~~147~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

²²¹~~148~~. (New) The device of claim ²²⁰~~147~~, wherein said data transmitting apparatus comprises radiotelemetry.

²²²~~149~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said device is wholly implantable.

²²³~~150~~. (New) The device of claim ²²²~~149~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

²²⁴~~151~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said housing is substantially oval-shaped.

²²⁵~~152~~. (New) The device of claim ¹⁴⁵~~122~~, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

²²⁶~~153~~. (New) A device for measuring glucose in a biological fluid, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operatively connected to said electronic circuit;

b) a sensor operably connected to said electrodes of said housing, said sensor comprising an apparatus for determining the amount of glucose in a biological sample, said glucose determining apparatus operably associated with said electrodes and comprising a membrane impregnated with an oxidase, a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane positioned more distal to said housing than said oxidase impregnated membrane, and an

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angiogenic layer positioned more distal to said housing than said bioprotective membrane,

c) a securing element for securing said device to biological tissue, said securing element composed of a material selected from the group consisting of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

²²⁷
~~154~~. (New) The device of claim ~~153~~²²⁶, wherein said securing element comprises a polyester velour.

²²⁸
~~155~~. (New) The device of claim ~~153~~²²⁶, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

²²⁹
~~156~~. (New) The device of claim ~~155~~²²⁸, wherein said wherein said fixation domain further comprises a capsular attachment layer.

²³⁰
~~157~~. (New) The device of claim ~~156~~²²⁹, wherein said capsular attachment layer comprises a porous implantable material.

²³¹
~~158~~. (New) The device of claim ~~156~~²²⁹, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

²³²
~~159~~. (New) The device of claim ~~156~~²²⁹, wherein said capsular attachment layer comprises surgical grade polyester velour.

²³³
~~160~~. (New) The device of claim ~~153~~²²⁶, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

²³⁴
~~161~~. (New) The device of claim ~~153~~²²⁶, wherein said bioprotective membrane comprises polytetrafluoroethylene.

²³⁵
~~162~~. (New) The device of claim ~~153~~²²⁶, wherein said angiogenic layer comprises polytetrafluoroethylene.

²³⁶
~~163~~. (New) The device of claim ~~153~~²²⁶, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

²³⁷
~~164~~. (New) The device of claim ~~153~~²²⁶, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

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165. (New) The device of claim 153, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.
- 239
166. (New) The device of claim 153, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).
- 240
167. (New) The device of claim 153, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.
- 241
168. (New) The device of claim 153, wherein said oxidase impregnated membrane comprises a single homogeneous structure.
- 242
169. (New) The device of claim 167, wherein said resistance layer restricts the transport of glucose therethrough.
- 243
170. (New) The device of claim 167, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.
- 244
171. (New) The device of claim 167, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.
- 245
172. (New) The device of claim 167, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.
- 246
173. (New) The device of claim 167, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.
- 247
174. (New) The device of claim 173, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.
- 248
175. (New) The device of claim 167, wherein said enzyme layer contains glucose oxidase.
- 249
176. (New) The device of claim 153, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.
- 250
177. (New) The device of claim 153, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.
- 251
178. (New) The device of claim 153, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

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179. (New) The device of claim 178, wherein said data transmitting apparatus comprises radiotelemetry.

253
180. (New) The device of claim 179, wherein said device is wholly implantable.

254
181. (New) The device of claim 180, wherein said device is sized and configured for being wholly implantable subcutaneously.

255
182. (New) The device of claim 181, wherein said housing is substantially oval-shaped.

256
183. (New) The device of claim 182, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

257
184. (New) A biological fluid measuring device, comprising:

a) a housing comprising an electronic circuit and at least two electrodes operably connected to said electronic circuit; and

b) a sensor operably connected to said electrodes of said housing, said sensor comprising (i) a bioprotective membrane, and (ii) an angiogenic layer, said angiogenic layer positioned more distal to said housing than said bioprotective membrane; and

c) a member for securing said device to biological tissue, and securing member associated with said housing.

258
185. (New) The device of claim 184, wherein said securing element comprises one of a material selected from the group consisting of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

259
186. (New) The device of claim 185, wherein said securing element comprises a polyester velour.

260
187. (New) The device of claim 186, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

261
188. (New) The device of claim 187, wherein said wherein said fixation domain further comprises a capsular attachment layer.

262
189. (New) The device of claim 188, wherein said capsular attachment layer comprises a porous implantable material.

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- ²⁶³
~~190~~. (New) The device of claim ²⁶¹~~188~~, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.
- ²⁶⁴
~~191~~. (New) The device of claim ²⁶¹~~188~~, wherein said capsular attachment layer comprises surgical grade polyester velour.
- ²⁶⁵
~~192~~. (New) The device of claim ²⁵¹~~184~~, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.
- ²⁶⁶
~~193~~. (New) The device of claim ²⁵¹~~184~~, wherein said bioprotective membrane comprises polytetrafluoroethylene.
- ²⁶⁷
~~194~~. (New) The device of claim ²⁵¹~~184~~, wherein said angiogenic layer comprises polytetrafluoroethylene.
- ²⁶⁸
~~195~~. (New) The device of claim ²⁵¹~~184~~, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.
- ²⁶⁹
~~196~~. (New) The device of claim ²⁵¹~~184~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.
- ²⁷⁰
~~197~~. (New) The device of claim ²⁵¹~~184~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.
- ²⁷¹
~~198~~. (New) The device of claim ²⁵¹~~184~~, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).
- ²⁷²
~~199~~. (New) The device of claim ²⁵¹~~184~~, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.
- ²⁷³
~~200~~. (New) The device of claim ²⁷²~~199~~, wherein said oxidase impregnated membrane comprises a single homogeneous structure.
- ²⁷⁴
~~201~~. (New) The device of claim ²⁷²~~199~~, wherein said resistance layer restricts the transport of glucose therethrough.
- ²⁷⁵
~~202~~. (New) The device of claim ²⁷⁴~~201~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.
- ²⁷⁶
~~203~~. (New) The device of claim ²⁷²~~199~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

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²⁷⁷
~~204~~. (New) The device of claim ²⁷⁶~~203~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

²⁷⁸
~~205~~. (New) The device of claim ²⁷²~~199~~, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

²⁷⁹
~~206~~. (New) The device of claim ²⁷⁸~~205~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

²⁸⁰
~~207~~. (New) The device of claim ²⁷²~~199~~, wherein said enzyme layer contains glucose oxidase.

²⁸¹
~~208~~. (New) The device of claim ²⁵⁷~~184~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

²⁸²
~~209~~. (New) The device of claim ²⁵⁷~~184~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

²⁸³
~~210~~. (New) The device of claim ²⁵⁷~~184~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

²⁸⁴
~~211~~. (New) The device of claim ²¹³~~210~~, wherein said data transmitting apparatus comprises radiotelemetry.

²⁸⁵
~~212~~. (New) The device of claim ²⁸⁴~~211~~, wherein said device is wholly implantable.

²⁸⁶
~~213~~. (New) The device of claim ²⁸⁵~~212~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

²⁸⁷
~~214~~. (New) The device of claim ²⁵⁷~~184~~, wherein said housing is substantially oval-shaped.

²⁸⁸
~~215~~. (New) The device of claim ²⁵⁷~~184~~, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

⁹⁷
~~216~~. (New) The device of claim ⁹⁴~~66~~, further comprising a securing element for securing said device to biological tissue.

⁹⁸
~~217~~. (New) The device of claim ⁹⁷~~216~~, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

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- ⁹⁹
218. (New) The device of claim ⁹⁸217, wherein said securing element comprises a polyester velour.
- ¹⁰⁰
219. (New) The device of claim ⁹⁴66, wherein said capsular attachment layer comprises a porous implantable material.
- ¹⁰¹
220. (New) The device of claim ⁹⁴66, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.
- ¹⁰²
221. (New) The device of claim ⁹⁴66, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.
- ¹⁰³
222. (New) The device of claim ⁹⁴66, wherein said angiogenic layer comprises polytetrafluoroethylene.
- ¹⁰⁴
223. (New) The device of claim ⁹⁴66, further comprising a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane located proximal to said angiogenic layer.
- ¹⁰⁵
224. (New) The device of claim ¹⁰⁴223, wherein said bioprotective membrane comprises polytetrafluoroethylene.
- ¹⁰⁶
225. (New) The device of claim ¹⁰⁴223, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.
- ¹⁰⁷
226. (New) The device of claim ¹⁰⁴223, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.
- ¹⁰⁸
227. (New) The device of claim ¹⁰⁴223, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.
- ¹⁰⁹
228. (New) The device of claim ¹⁰⁴223, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).
- ¹¹⁰
229. (New) The device of claim ⁹⁴66, further comprising a membrane impregnated with an oxidase located proximal to said angiogenic layer.
- ¹¹¹
230. (New) The device of claim ¹¹⁰229, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.
- ¹¹²
231. (New) The device of claim ¹¹¹230, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

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¹¹²
~~232~~. (New) The device of claim ¹¹¹~~230~~, wherein said resistance layer restricts the transport of glucose therethrough.

¹¹³
~~233~~. (New) The device of claim ¹¹²~~232~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

¹¹⁴
~~234~~. (New) The device of claim ¹¹³~~233~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

¹¹⁵
~~235~~. (New) The device of claim ¹¹⁴~~234~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

¹¹⁶
~~236~~. (New) The device of claim ¹¹⁵~~235~~, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

¹¹⁷
~~237~~. (New) The device of claim ¹¹⁶~~236~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

¹¹⁸
~~238~~. (New) The device of claim ¹¹⁷~~237~~, wherein said enzyme layer contains glucose oxidase.

¹²⁰
~~239~~. (New) The device of claim ⁹⁴~~66~~, further comprising a housing that has an electronic circuit and at least two electrodes operatively connected to said electronic circuit, wherein said sensor is operably connected to said electrodes of said housing.

¹²¹
~~240~~. (New) The device of claim ¹²⁰~~239~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

¹²²
~~241~~. (New) The device of claim ¹²⁰~~239~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

¹²³
~~242~~. (New) The device of claim ¹²⁰~~239~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

¹²⁴
~~243~~. (New) The device of claim ¹²³~~242~~, wherein said data transmitting apparatus comprises radiotelemetry.

¹²⁵
~~244~~. (New) The device of claim ⁹⁴~~66~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

¹²⁶
~~245~~. (New) The device of claim ⁹⁴~~66~~, wherein said housing is substantially oval-shaped.

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- ¹²⁷
~~246~~. (New) The device of claim ⁹⁴~~66~~, wherein said sensor interface tip comprises a dome configuration.
- ¹²⁷
~~247~~. (New) The device of claim ~~246~~, wherein said sensor interface tip protrudes from said housing.
- ²⁸⁹
~~248~~. (New) A device for measuring glucose in a tissue of a host comprising a wholly implantable device comprising a sensor comprising an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule, wherein said sensor tip fixation domain further comprises a capsular attachment layer made from surgical grade polyester velour on said sensor.
- ²⁹⁰
~~249~~. (New) The device of claim ²⁸⁹~~248~~, further comprising a securing element for securing said device to biological tissue.
- ²⁹¹
~~250~~. (New) The device of claim ²⁹⁰~~249~~, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.
- ²⁹¹
~~251~~. (New) The device of claim ~~250~~, wherein said securing element comprises a polyester velour.
- ²⁸⁹
~~252~~. (New) The device of claim ~~248~~, wherein said sensor tip fixation domain further comprises an angiogenic layer on said sensor.
- ²⁹³
~~253~~. (New) The device of claim ²⁹³~~252~~, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.
- ²⁹³
~~254~~. (New) The device of claim ²⁹³~~253~~, wherein said angiogenic layer comprises polytetrafluoroethylene.
- ²⁸⁹
~~255~~. (New) The device of claim ²⁸⁹~~248~~, further comprising a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane located proximal to said angiogenic layer.
- ²⁹⁶
~~256~~. (New) The device of claim ²⁹⁶~~255~~, wherein said bioprotective membrane comprises polytetrafluoroethylene.
- ²⁹⁶
~~257~~. (New) The device of claim ²⁹⁶~~255~~, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

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- ²⁹⁹
~~258~~. (New) The device of claim ²⁹⁶~~255~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.
- ³⁰⁰
~~259~~. (New) The device of claim ²⁹⁶~~255~~, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.
- ³⁰¹
~~260~~. (New) The device of claim ²⁹⁶~~255~~, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).
- ³⁰²
~~261~~. (New) The device of claim ³⁰¹~~260~~, said sensor further comprising a membrane impregnated with an oxidase.
- ³⁰³
~~262~~. (New) The device of claim ³⁰²~~261~~, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.
- ³⁰⁴
~~263~~. (New) The device of claim ³⁰³~~262~~, wherein said oxidase impregnated membrane comprises a single homogeneous structure.
- ³⁰⁵
~~264~~. (New) The device of claim ³⁰³~~262~~, wherein said resistance layer restricts the transport of glucose therethrough.
- ³⁰⁶
~~265~~. (New) The device of claim ³⁰³~~262~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.
- ³⁰⁷
~~266~~. (New) The device of claim ³⁰³~~262~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.
- ³⁰⁸
~~267~~. (New) The device of claim ³⁰⁷~~266~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.
- ³⁰⁹
~~268~~. (New) The device of claim ³⁰³~~262~~, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.
- ³¹⁰
~~269~~. (New) The device of claim ³⁰⁹~~268~~, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.
- ³¹¹
~~270~~. (New) The device of claim ³⁰³~~262~~, wherein said enzyme layer contains glucose oxidase.
- ³¹²
~~271~~. (New) The device of claim ²⁸⁹~~248~~, further comprising a housing that has an electronic circuit and at least two electrodes operatively connected to said electronic circuit, wherein said sensor is operably connected to said electrodes of said housing.

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³¹³
~~272~~. (New) The device of claim ³¹²~~271~~, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

³¹⁴
~~273~~. (New) The device of claim ³¹²~~271~~, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

³¹⁵
~~274~~. (New) The device of claim ³¹²~~271~~, wherein said housing further comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

³¹⁶
~~275~~. (New) The device of claim ³¹⁵~~274~~, wherein said data transmitting apparatus comprises radiotelemetry.

³¹⁷
~~276~~. (New) The device of claim ²⁸⁹~~248~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

³¹⁸
~~277~~. (New) The device of claim ²⁸⁹~~248~~, wherein said housing is substantially oval-shaped.

³¹⁹
~~278~~. (New) The device of claim ²⁸⁹~~248~~, wherein said sensor interface tip comprises a dome configuration.

³²⁰
~~279~~. (New) The device of claim ²⁸⁹~~248~~, wherein said sensor interface tip protrudes from said housing.

¹²⁹
¹³¹
~~280~~. (New) The device of claim ¹²⁹~~280~~, further comprising a securing element for securing said device to biological tissue.

¹³²
~~281~~. (New) The device of claim ¹³¹~~280~~, wherein said securing element comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.

¹³³
~~282~~. (New) The device of claim ¹³²~~281~~, wherein said securing element comprises a polyester velour.

¹³⁴
~~283~~. (New) The device of claim ¹²⁹~~280~~, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

¹³⁵
~~284~~. (New) The device of claim ¹²⁹~~280~~, wherein said angiogenic layer comprises polytetrafluoroethylene.

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136
285. (New) The device of claim 70, further comprising a bioprotective membrane substantially impermeable to macrophages, said bioprotective membrane located proximal to said angiogenic layer.

137
286. (New) The device of claim 285, wherein said bioprotective membrane comprises polytetrafluoroethylene.

138
287. (New) The device of claim 285, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

139
288. (New) The device of claim 285, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.1 micron to about 1.0 micron.

140
289. (New) The device of claim 285, wherein said bioprotective membrane comprises pores having diameter ranging from about 0.2 micron to about 0.5 micron.

141
290. (New) The device of claim 285, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

142
291. (New) The device of claim 70, said sensor further comprising a membrane impregnated with an oxidase.

143
292. (New) The device of claim 291, wherein said oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

144
293. (New) The device of claim 291, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

145
294. (New) The device of claim 292, wherein said resistance layer restricts the transport of glucose therethrough.

146
295. (New) The device of claim 294, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

147
296. (New) The device of claim 292, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

148
297. (New) The device of claim 292, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

149
298. (New) The device of claim 292, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

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¹⁵⁰
299. (New) The device of claim ¹⁴³292, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

¹⁵¹
300. (New) The device of claim ¹⁴³292, wherein said enzyme layer contains glucose oxidase.

¹⁵²
301. (New) The device of claim ¹²⁹70, wherein said housing comprises an electronic circuit and at least two electrodes operatively connected to said electronic circuit, and wherein said sensor is operably connected to said electrodes of said housing.

¹⁵³
302. (New) The device of claim ¹⁵²301, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

¹⁵⁴
303. (New) The device of claim ¹⁵²301, wherein said electronic circuit operably connected to at least one of said electrodes is adapted for long-term operation.

¹⁵⁵
304. (New) The device of claim ¹²⁹70, wherein said housing comprises an apparatus operatively connected to said electronic circuit for transmitting data to a location external to said device.

¹⁵⁶
305. (New) The device of claim ¹⁵⁵304, wherein said data transmitting apparatus comprises radiotelemetry.

¹⁵⁷
306. (New) The device of claim ¹²⁹70, wherein said device is sized and configured for being wholly implantable subcutaneously.

¹⁵⁸
307. (New) The device of claim ¹²⁹70, wherein said housing is substantially oval-shaped.

¹⁵⁹
308. (New) The device of claim ¹²⁹70, wherein said sensor comprises an interface tip that has a dome configuration.

¹⁶⁰
309. (New) The device of claim ¹⁵⁹308, wherein said interface tip protrudes from said housing.

³⁰
310. (New) The device of claim ³¹47, wherein said sensor comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.

⁵¹
311. (New) The device of claim ⁵⁰310, wherein said wherein said fixation domain further comprises a capsular attachment layer.

⁵²
312. (New) The device of claim ⁵¹311, wherein said capsular attachment layer comprises a porous implantable material.

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⁵³
~~313~~. (New) The device of claim ⁵¹~~311~~, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

⁵⁴
~~314~~. (New) The device of claim ⁵¹~~311~~, wherein said capsular attachment layer comprises surgical grade polyester velour.

⁵⁵
~~315~~. (New) The device of claim ³¹~~47~~, further comprising an angiogenic layer positioned more distal to said housing than said bioprotective membrane

⁵⁶
~~316~~. (New) The device of claim ⁵⁵~~315~~, wherein said angiogenic layer comprises one of hydrophilic polyvinylidene fluoride, mixed cellulose esters, polyvinyl chloride, polypropylene, polysulphone and polymethacrylate.

⁵⁷
~~317~~. (New) The device of claim ⁵⁵~~315~~, wherein said angiogenic layer comprises polytetrafluoroethylene.

⁵⁸
~~318~~. (New) The device of claim ⁵⁵~~315~~, wherein said bioprotective and angiogenic layers are formed from a polytetrafluoroethylene.

⁵⁹
~~319~~. (New) The device of claim ³¹~~47~~, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

³⁵
~~320~~. (New) The device of claim ³⁴~~48~~, wherein said oxidase impregnated membrane comprises a single homogeneous structure.

³⁶
~~321~~. (New) The device of claim ³⁴~~48~~, wherein said glucose oxidase impregnated membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

³⁷
~~322~~. (New) The device of claim ³⁶~~321~~, wherein said resistance layer restricts the transport of glucose therethrough.

³⁸
~~323~~. (New) The device of claim ³¹~~322~~, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

³⁹
~~324~~. (New) The device of claim ³⁶~~321~~, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

⁴⁰
~~325~~. (New) The device of claim ³⁹~~324~~, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

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- 41
326. (New) The device of claim 322, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.
- 42
327. (New) The device of claim 326, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.
- 43
328. (New) The device of claim 50, wherein said housing comprising said electronic circuitry is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.
- 44
329. (New) The device of claim 50, wherein said housing further comprises an apparatus operatively connected to said electronic circuitry for transmitting data to a location external to said device.
- 46
330. (New) The device of claim 329, wherein said data transmitting apparatus comprises radiotelemetry.
- 31
331. (New) The device of claim 47, wherein said device is sized and configured for being wholly implantable subcutaneously.
- 31
332. (New) The device of claim 47, wherein said housing is substantially oval-shaped.
- 31
333. (New) The device of claim 47, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.
- 67
334. (New) The device of claim 58, wherein said securing member comprises one of polyester, polypropylene cloth, polytetrafluoroethylene felts and expanded polytetrafluoroethylene.
- 67
335. (New) The device of claim 58, wherein said securing member comprises a polyester velour.
- 63
336. (New) The device of claim 57, wherein said sensor further comprises an interface tip for communicating with the tissue of said host, said tip comprising a fixation domain adapted for substantial fixation of said tip in a foreign body capsule.
- 63
337. (New) The device of claim 336, wherein said sensor tip fixation domain further comprises a capsular attachment layer.
- 64
338. (New) The device of claim 337, wherein said capsular attachment layer comprises a porous implantable material.

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⁸⁶
339. (New) The device of claim ⁸⁴337, wherein said capsular attachment layer comprises one of polyester, velour, expanded polytetrafluoroethylene, polytetrafluoroethylene felts, and polypropylene cloth.

⁸⁷
340. (New) The device of claim ⁸⁴337, wherein said capsular attachment layer comprises surgical grade polyester velour.

⁸⁸
341. (New) The device of claim ⁶³341, wherein said bioprotective membrane comprises one of polypropylene, polysulphone, polytetrafluoroethylene, and poly(ethylene terephthalate).

¹¹
342. (New) The device of claim ¹⁰341, wherein said glucose oxidase-containing membrane comprises a resistance layer, and enzyme layer, an interference layer and an electrolyte layer.

⁷²
343. (New) The device of claim ⁷¹342, wherein said resistance layer restricts the transport of glucose therethrough.

⁷³
344. (New) The device of claim ⁷¹342, wherein said resistance layer comprises a polymer membrane with a oxygen-to-glucose permeability ratio of approximately 200:1.

⁷⁴
345. (New) The device of claim ⁷¹342, wherein said interference layer comprises a hydrophobic membrane substantially permeable to hydrogen peroxide.

⁷⁵
346. (New) The device of claim ⁷⁴345, wherein said interference layer comprises a hydrophobic membrane substantially impermeable to chemical compositions having a molecular weight substantially greater than hydrogen peroxide.

⁷⁶
347. (New) The device of claim ⁷⁴345, wherein said electrolyte layer comprises a semipermeable hydrophilic coating.

⁷⁷
348. (New) The device of claim ⁷⁶347, wherein said electrolyte layer comprises a curable copolymer of a urethane polymer and a hydrophilic film-forming polymer.

⁷⁸
349. (New) The device of claim ⁷⁰341, wherein said glucose oxidase-containing membrane comprises a single homogeneous structure.

⁸¹
350. (New) The device of claim ⁶³341, wherein said housing comprising said electronic circuit is filled with material comprising waxes and resins wherein said waxes and resins secure said electronic circuit within said housing.

⁸²
351. (New) The device of claim ⁶³341, wherein said electronic circuit operably connected to said at least two electrodes is adapted for long-term operation.

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⁸²
~~352~~. (New) The device of claim ⁸¹~~62~~, wherein said data transmitting apparatus comprises radiotelemetry.

⁹⁰
~~353~~. (New) The device of claim ⁶³~~57~~, wherein said device is wholly implantable.

⁹¹
~~354~~. (New) The device of claim ⁹⁰~~353~~, wherein said device is sized and configured for being wholly implantable subcutaneously.

⁹²
~~355~~. (New) The device of claim ⁶³~~57~~, wherein said housing is substantially oval-shaped.

⁹³
~~356~~. (New) The device of claim ⁶³~~57~~, wherein said sensor further comprises a sensor interface dome that protrudes from said housing.

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AMENDMENTS TO THE DRAWINGS

New drawing FIG. 1D has been added at the Examiner's suggestion to schematically depict an enzyme membrane comprising a resistance layer 40, an enzyme layer 42, an interference layer 44, and an electrolyte layer 46.

Attachment: New sheet

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